Tivoli Fountain Repairs – Condition Study
Capitol Campus,
Olympia, Washington
Agreement No. 2002-042-A (1)
January 24, 2003

EXECUTIVE SUMMARY

The executive summary is comprised of two parts. Part one is a brief history of the fountain from 1949 to present. Part two is a phased workplan that indicates priorities, a timeline and cost estimate for completing the repairs to the fountain. Detailed reports describing the team's research, evaluation and analysis of the structural, mechanical, electrical and aesthetic elements of the fountain are contained in the Evaluation and Analysis section of the study.

Part One: HISTORY OF THE TIVOLI FOUNTAIN:

1949 – 1953: Mr. Peter G. Schmidt first conceived of the idea for a fountain on the Washington State capitol campus during his visit to Copenhagen, Denmark with his wife in 1949. Schmidt, then-president of the Olympia-Tumwater Foundation (a privately funded organization created for the advance of recreational, benevolent, and educational projects for the State of Washington) was especially taken with a large fountain that he encountered at Tivoli Park. Danish designer Fritz Meyer had created a replica of a Renaissance period, Roman-style, fountain located in Tivoli, Italy. Schmidt felt that this type of fountain would fill the perceived need for a fountain at the state capitol campus. Mr. Schmidt acquired samples of the "copper petals" and plans for the fountain, from Mr. Meyer, prior to his return home. His fellow Olympia-Tumwater Foundation members agreed with his proposal and the fountain was offered as a gift to the State of Washington. Construction of the 50-foot diameter fountain began soon after the legislature's approval. Wohleb, Wohleb, and Bennett served as coordinating architects for the project. The fountain was dedicated by then-Governor Arthur B. Langlie on April 15, 1953. The fountain featured an outer basin perimeter wall from which 540 jets created an umbrella of water. Inside of this outer basin wall were two concentric basins with vertical jets bubbling out of 14 copper "Rush leaf" bundles. In the center of the fountain was a central nozzle group that shot water in both a vertical spout and a diagonal spray and was surrounded by copper "Waterlilies". All of the sprays alternately rose and fell together, creating five different artistic water displays while circulating 600 gallons of water a minute. Light fixtures were provided at each of the bundles and at the fountain center. An iron picket fence and gate surrounded the fountain. The alternate bid fence, as installed, was of a much simpler design than the base bid ornamental fence. Seating was provided at several locations as well as a commemorative plaque. A pump house was set unobtrusively into the nearby hillside.

1986 – 1987: The fountain underwent a $68,900 renovation. The copper leaves, a sitting bench, light fixtures, pumps and the water stage controls were replaced. Water seals and joints were repaired. A wind sensor was installed to shut off the fountain in high winds as well as a drinking fountain.

1988 - 1989: Governor Booth Gardner ordered that the fountain be turned off as a symbolic water conservation gesture. Freeze damage required $2,800 worth of cement and mechanical repairs prior to reopening.

Today: The fountain currently undergoes routine maintenance, which includes cleaning intake screens, checking water levels, chemical testing, skimming water surface of debris, power washing fountain basins and structures, maintaining the circulating pump and air compressor, and servicing the float/fill valve. The fountain is operated each year between approximately April 1st and October 30th when it is shut down and winterized.

Part Two: WORKPLAN AND COST ESTIMATE

The repairs are broken out into three separate construction phases to provide for flexibility in funding allocation. The inclusion of items in each phase and their prioritization within each phase was based upon the following sometimes overlapping criteria. Criticality of the repair to immediate and long term function of the fountain; energy savings; cost savings due to a reduction in unscheduled and scheduled maintenance; prevention of additional deterioration and damage to the fountain structure; aesthetic repairs; material and equipment upgrades to current campus standards; replacement of missing or uninstalled features; enhancements. Completing the work under one construction contract rather than several contracts would realize substantial soft and hard cost savings, including material and labor cost escalation (inflation), etc.

PHASE 1: (Complete repair prior to April 2003)

1. Replace Programmable Logic Controller (PLC) program tool, wiring & devices. (ENERGY SAVINGS)	$20,500.
2a. Replace pump, pump isolation valves and pump piping.	$14,500.
2b. Replace 240-volt 3-phase service with a new 480-volt service.	$14,000.
3. Install magnesium ribbon anode for corrosion protection.	$2,900.
SUBTOTAL:	$51,900.
DESIGN CONTINGENCY @ 10%:	$5,190.
SUBTOTAL:	$57,090.
GENERAL CONTRACTOR OH&P @ 25%	$14,273.
PHASE 1 TOTAL COST:	**$71,363.**

PHASE 2: (Complete repairs during the 2003 - 2004 Biennium)

1. Install Variable Speed Drive (VSD), valves and pressure control at the pump house. (ENERGY SAVINGS)	$7,500.
2. Replace existing light fixtures and controls with multi-color LED lighting fixtures. (ENERGY SAVINGS)	$36,000.
3a. Replace all jets and nozzles.	$19,500.

3b. Replace cast iron gate valves located in the outer basin (umbrella balance valves).	$2,500.
4a. Clean all concrete surfaces of the fountain	$9,500.
4b. Seal hairline cracks at the outer basin wall	$30,000.
4c. Replace sealant at cold joints/expansion joints with polyurethane grout.	$30,000.
5. Replace 14 metal cans at the "Rush leaf" bundles.	$5,000.
6. Replace "Water-lilies" and "Rush leaf" bundles	$70,000.
SUBTOTAL:	$210,000.
DESIGN CONTINGENCY @ 10%:	$21,000.
SUBTOTAL:	$231,000.
GENERAL CONTRACTOR OH&P @ 25%	$57,750.
SUBTOTAL:	$288,750.
INFLATION AT 2%/YEAR X TWO YEARS	$11,666.
PHASE 2 TOTAL COST:	**$300,416.**

PHASE 3: (Complete repairs during the 2005 – 2006 Biennium)

1. Replace wind speed detector.	$2,500.
2. Repair/rebuild cast iron plug valves in the ground next to fountain.	$1,800.
3. Replace PVC piping with copper. Replace anti-corrosion treatment at piping.	$4,000.
4. Replace butterfly type control valves with linear control valves.	$11,000.
5. Restore the privet type hedge along the inside perimeter of the fence.	$10,000.
6. Install multi-color LED lighting at outer basin "Umbrella".	$44,000.
7. Replace steel picket fence with custom ornamental wrought iron fence.	$75,000.
SUBTOTAL:	$148,300.
DESIGN CONTINGENCY @ 10%:	$14,830.
SUBTOTAL:	$163,130.
GENERAL CONTRACTOR OH&P @ 25%	$40,783.
SUBTOTAL:	$203,913.
INFLATION AT 2%/YEAR X FOUR YEARS	$16,809.
PHASE 3 TOTAL COST:	**$220,722.**

GRAND TOTAL PHASES 1, 2 AND 3: $592,501.

The cost estimate includes contractor and sub-contractor mark-ups. Estimate does not include professional services fees, sales tax, permits, construction contingency, reproduction expenses or other reimbursable expenses. Assume inflation rate of 2% per year (compounded) for work beyond April 2003.

The following Executive Summary Spreadsheet lists the tasks in Part Two in order by phase. The spreadsheet also breaks down the tasks into three columns along the right-hand side. The total cost at the bottom of each column includes design contingency and general contractor overhead and profit. Inflation is not included.

The three columns and total costs shown on the spreadsheet are as follows:

ALL ITEMS:	$564,025.
MUST / SHOULD DO ITEMS:	$386,650.
MUST DO ITEMS:	$67,375.

Tivoli Fountain Repairs: Condition Study
Capitol Campus
Olympia, Washington
Agreement No. 2002-042-A (1)
Architects BCRA Tsang
EXECUTIVE SUMMARY SPREADSHEET
January 24, 2003

PHASE	TASK	COMMENTS	ALL ITEMS	MUST / SHOULD DO ITEMS	MUST DO ITEMS
1	Replace Programmable Logic Controller (PLC) program tool, wiring & devices.	Existing PLC broken and function cannot change. Energy savings	$20,500	$20,500	$20,500
1	Replace pump, pump isolation valves and pump piping.	Pump difficult to start and could fail at any time.	$14,500	$14,500	$14,500
1	Replace 240-volt 3-phase service with a new 480-volt service.	Must be done prior to pump replacement	$14,000	$14,000	$14,000
1	Install magnesium ribbon anode for corrosion protection.	Reduce corrosion of metal components and staining of concrete	$2,900	$2,900	
2	Install Variable Speed Drive (VSD), valves and pressure control at the pump house.	Energy savings	$7,500	$7,500	
2	Replace existing light fixtures and controls with multi-color LED lighting fixtures.	Energy savings and recreate original colored lighting display	$36,000	$36,000	
2	Replace all jets and nozzles.	Worn condition does not create original water effect	$19,500	$19,500	
2	Replace cast iron gate valves located in the outer basin (umbrella balance valves).	Operate now but do not seal well	$2,500	$2,500	
2	Clean all concrete surfaces of the fountain	Clean stains and prepare for expansion joint and crack repair	$9,500	$9,500	
2	Seal hairline cracks at the outer basin wall	Cracks will progressively grow and can cause substantial damage	$30,000	$30,000	
2	Replace sealant at cold joints/expansion joints with polyurethane grout.	Eliminate substantial water loss at cold joints/expansion joints	$30,000	$30,000	
2	Replace 14 metal cans at the "Rush leaf" bundles	Severely corroded	$5,000	$5,000	
2	Replace "Water-lilies" and "Rush leaf" bundles	Damaged or corroded	$70,000	$70,000	
3	Replace wind speed detector.	Increased damage to ornamental items during high wind conditions	$2,500	$2,500	
3	Repair/rebuild cast iron plug valves in the ground next to fountain	Valves are seized and inoperable	$1,800	$1,800	
3	Replace PVC piping with copper. Replace anti-corrosion treatment at piping.	Pipe is becoming brittle	$4,000	$4,000	
3	Replace butterfly type control valves with linear control valves.	Increased fountain display flexibility and energy savings	$11,000	$11,000	
3	Restore the privet type hedge along the inside perimeter of the fence.	Hedge was removed at some point in the past	$10,000		
3	Install multi-color LED lighting at outer basin "Umbrella".	Will illuminate portion not currently well lit.	$44,000		
3	Replace steel picket fence with custom ornamental wrought iron fence.	Fence as originally designed but not installed due to cost	$75,000		
	SUBTOTAL		$410,200	$281,200	$49,000
	DESIGN CONTINGENCY @ 10%:		$41,020	$28,120	$4,900
	SUBTOTAL		$451,220	$309,320	$53,900
	GENERAL CONTRACTOR OH&P @ 25%		$112,805	$77,330	$13,475
	TOTAL		$564,025	$386,650	$67,375

Costs do not include professional fees, sales tax, permits, construction contingency, reproduction expenses or other reimbursable expenses.
Assume inflation rate of 2% per year (compounded) for work beyond April 2003.